instrument is modelled upon the similar extractor of Wetherla, originally designed for the extraction of O'Dwyer tubes, and will sustain a weight of one kilogramme, so that considerable force can be exercised with it.

Œsophagometry.—DR. C. D. SPIVAK, of Denver, recommends (*New York Medical Journal*, August 31, 1901) an intragastric whistle as a new device in measuring the length of the œsophagus in the living subject. A whistle is attached to the distal extremity of a stomach-tube. The whistle blows as it passes the cardiac orifice into the stomach. Its distance from the teeth can then be measured.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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Echinococcus Multilocularis.—MELNIKOW-RASWEDENKOW. The fourth supplement of Ziegler's *Beiträge*, 1901 seems to mark a change of policy in the conduct of that series. Unlike the monographs of Pianese on carcinoma, of Hückel on vaccine bodies, and of Sata on mixed infections in phthisis, the present three-hundred-page volume is in the main casuistic. By the co-operation of several (chiefly German and Russian) laboratories, it has been possible to obtain a series of 101 cases in man of the alveolar (or multilocular) type of echinococcus disease. Thorough routine histological study, some comparative work, and a moderate amount of statistics render possible a considerable modification of older views of the disease. Such casuistic work justifies itself, and the supplement series does not suffer.

The parasite which causes the multilocular type of echinococcus disease is not *tænia echinococcus*. In the first place no intermediate host is required. Granted an embryo which gains entrance from the gastro-enteric tract *via* the blood stream to some portal venule beneath the liver capsule, a multilocular chitinous structure then forms wholly resembling the mature proglottis of a tapeworm. From the finely granular protoplasm which lines the chitinous walls, both within and without, there are formed not alone scolices (as from the inner wall of an ordinary or unilocular hydatid), but also young parasite forms (without capsule) and ovoid embryos (with capsule). Such embryos, discharged from the outer surface of the cyst, may fall victims to phagocytosis in tissue spaces, or, if they obtain access to the lumina of bloodvessels or bronchioles, they may there develop fresh chitinous cysts. The new crop of cysts loses in virulence and remains sterile. One is thus reminded of the trematode fashion of developing rather than of the way described for cestodes in general.

Meantime the ready release of embryos from the outer coating of the cyst renders metastasis easy (*e. g.*, to lymph nodes, lung, brain), and produces in the neighborhood of cysts a type of reaction not far removed from the infectious type. Toxins effect an increased tendency to proliferation, may, indeed, cause more or less local necrosis, and form a kind of granuloma, characterized by the presence of lymphoid cells, epithelioid cells, and giant-cells, with caseous degeneration

More cases occur in Russia than have been supposed, and more than even the present collection (seventy) might suggest. The parasite is of wide distribution upon the Continent, and two forms of parasite have been met with in the same regions.

The details of the method of infection remain unknown, and experimental biology has been perforce deferred. As far as examined, the reactions of man and the lower animals to the parasite present no essential differences.

Histologically, the work is nigh to settling a moot-point. Such differences as the two types are now seen to present were at first thought capable of explanation on the basis of individual tissue differences. It was thus that Virchow had explained the matter. But the discovery of the two kinds in one liver, a great hydatid in the right lobe and an alveolar group, unrelated with the hydatid, in the Spigelian lobe, together with an adequate definition of the two types of growth (such as afforded by the present work), makes it unnecessary to suppose, here at least, such mysterious differences of reaction.

As to technique there is little to say. Melnikow-Raswedenkow prefers formaldehyde fixation, celloidin embedding, and staining with Weigert's elastic tissue stain, followed by either eosin or Van Gieson's mixture and alum-hæmatoxylin. There are some pretty plates, showing, among other things, phagocytosis and the penetration of the elastic membrane by young forms of the parasite in the act of invading a vessel.—E. E. S.

Observation on the Occurrence of Plasma Cells and Mast Cells.—Hirschmann (Virchow's *Archiv*, 1901, clxiv., p. 541) has made a histological study of twenty-five larynges which were the seat either of acute or of chronic inflammation. Cases of tuberculous or syphilitic laryngitis were excluded.

Plasma cells were not found in the normal or in the inflamed larynx. Joannovicz, Unna, and v. Marshalko agree that plasma cells are formed when a strong infectious irritant acts for quite a long time, producing a loss of substance and a destruction of cells whereby chromatin is set free. Unna states that plasma cells are rarely formed by the action of weak irritants, for example, in infectious catarrhs, and then only in small numbers. A loss of substance is ordinarily the sign of a strong, progressive, and long-continued disturbance of nutrition.

Laryngitis is usually due to an irritant which is too weak to produce an extensive destruction of cells. There is generally a marked emigration of leucocytes and proliferation of cells. Without undergoing necrosis these cells are cast off and form part of the secretion. Hirschmann found mast cells in every case. This is in accord with the statement of various writers that mast cells are found especially in those organs which are the seat of a mild but long-continued inflammation. For the demonstration of mast cells either thionin or aqueous methylene blue gives as good results as polychrome methylene blue.

The mast cells were never very abundant in the cases of laryngitis which resulted from chronic passive congestion. In those of purely inflammatory origin, however, the mast cells were numerous. Although they were scattered diffusely through the mucosa and submucosa they were always present in largest numbers in the neighborhood of the vessels and glands, which were always surrounded by collections of small cells. Normally the tissues of the larynx are infiltrated with small cells, but in pathological conditions this infiltration is increased.

The writer believes that the different forms of mast cells which have been described really represent different stages in the development of the same cell. He makes the following divisions: First stage. Cell elongated; blue the predominating color of the protoplasm; nucleus darker blue and staining intensely; no indication of karyokinesis. One pole of the cell body takes a slightly reddish tinge due to the presence of single red granules. Second stage. The size of the cell increases, and the red tinge gradually becomes more pronounced until at length the entire cell body is composed of red granules. The contour of the nucleus may become indistinct, but more commonly the nucleus remains unchanged. Later some of the granules break through the cell boundaries, and are seen lying free at a greater or less distance from the cell. Last stage. The nucleus has disappeared. An irregular clump of red granules and single scattered granules near it are all that remain of the cell. These three stages are not sharply separated from one another.

Andry and Newberger regard the mast cells as related to the leucocytes, but the direct proof is wanting. Hirschmann claims he has furnished this by the discovery of a mast cell in the act of migrating through the wall of a capillary. Large mononuclear leucocytes, he says, wander into an inflammatory area, and are there converted into mast cells by taking up the products of inflammation. It is these products of inflammation which give the cell its characteristic color. These substances, the nature of which is unknown, are ingested in great amount and lead at length to the destruction of the cell.—J. H. P.

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